

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte

Appeal No. \_\_\_\_\_

Serial No.: 09/867,736  
Filed: May 20, 2001  
Group Art Unit: 2615  
Examiner: Lun S. Lao  
Applicant: Chinping Q. Yang  
Title: Audio Post processing in DVD, DTV and Other Audio Visual  
Products

Cincinnati, Ohio 45202

May 18, 2009  
Via EFS-WEB

RESPONSE TO NON-COMPLIANT APPEAL BRIEF

This paper is in response to the Notification of Non-compliant Appeal Brief mailed March 17, 2009 which is in furtherance of Applicant's Brief on Appeal filed February 17, 2009 which was furtherance of Applicant's Notice of Appeal filed October 16, 2008, appealing the decision of the Examiner dated April 16, 2008 finally rejecting claims 1-29. Replacement

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/ Thomas W. Humphrey /  
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May 18, 2009  
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sections relating to the Concise Explanation of Subject Matter, Grounds for Rejection and Argument are addressed herein as required by said Notification.

### **Summary of Claimed Subject Matter as to Independent Claim 1**

Claim 1 recites an audio post processing method, generally shown in Fig. 4 and described in the specification at page 13 line 14 through page 21 line 4. Namely, “matrix mixing” such as downmixing or Prologic algorithms, are first applied (step 32 or 34, Fig. 4, page 14 line 3, page 16, line 5) to achieve channel parity. Then, and only thereafter, enhanced surround sound programming (step 40, page 17 line 10) performs a step of “decoding a surround channel of the matrix mixed audio signal”. A “low frequency input channel” is output to a “low frequency effect compatible speaker” (step 46, page 18 line 17), and an “ambient noise-containing channel” is delivered to a speaker system to create a “three dimensional effect” (step 52, page 19 line 7), and a “center channel” is equalized from the “matrix mixed audio signal” (step 60, page 20 line 3).

By observing proper order in the processing steps, identified as a “sequenced process” in the language of claim 1, the post processing proceeds without becoming “tinny”, “hollow”, “clipped”, or “choppy,” or evidencing unwanted time delays, static, granularity and other sound degradation.

### **Summary of Claimed Subject Matter as to Independent Claim 10**

Claim 10 recites an audio post processing method, generally shown in Fig. 4 and described in the specification at page 13 line 14 through page 21 line 4. Namely, “matrix mixing” such as downmixing or Prologic algorithms, is first performed (step 32 or 34, Fig. 4, page 14 line 3, page 16, line 5) to achieve channel parity. Then, and only thereafter, enhanced surround sound programming (step 40, page 17 line 10) performs a step of “decoding a surround channel of the matrix mixed audio signal”; after these steps, a “low frequency input channel” is output to a “bass compatible speaker” (step 46, page 18 line 17), and finally, a “headphone algorithm” is applied to the “matrix mixed audio signal” (step 62, page 20 line 18).

By observing proper order in the processing steps, identified as “ordered processes” in the language of claim 10, the post processing proceeds without becoming “tinny”, “hollow”, “clipped”, or “choppy,” or evidencing unwanted time delays, static, granularity and other sound degradation.

### **Summary of Claimed Subject Matter as to Independent Claim 17**

Claim 17 recites an audio post processing system, which operates generally as shown in Fig. 4 and described in the specification at page 13 line 14 through page 21 line 4. Namely, the post processing system includes “at least one decoder” (e.g., within console 26, Fig. 3) that performs a sequence of steps including “matrix mixing” such as downmixing or Prologic algorithms (step 32 or 34, Fig. 4, page 14 line 3, page 16, line 5). Then, and only thereafter, (step 40, page 17 line 10) “decoding a surround channel of the matrix mixed audio signal”; after these steps, a “low frequency input channel” is output to a “low frequency effect compatible speaker” (step 46, page 18 line 17), then an “ambient noise containing channel” is output “to a speaker system” (step 52, page 19 line 7), next “center channel equalizing” (step 60, page 20 line 3). The claim further recites a console (26, Fig. 3) and a signal source (drive 18, Fig. 3).

By observing proper order in the processing steps, identified as “sequenced steps” in the language of claim 17, the post processing proceeds without becoming “tinny”, “hollow”, “clipped”, or “choppy,” or evidencing unwanted time delays, static, granularity and other sound degradation.

### **Summary of Claimed Subject Matter as to Independent Claim 28**

Claim 28 recites an audio post processing system, which operates generally as shown in Fig. 4 and described in the specification at page 13 line 14 through page 21 line 4. Namely, the post processing system includes “at least one decoder” (e.g., within console 26, Fig. 3) that performs a sequence of steps including “matrix mixing” such as downmixing or Prologic algorithms (step 32 or 34, Fig. 4, page 14 line 3, page 16, line 5). Then, and only thereafter, (step 40, page 17 line 10) “decoding a surround channel of the matrix mixed audio signal”; after these steps, a “low frequency input channel” is output to a “bass effect compatible speaker” (step 46, page 18 line 17), then a “headphone algorithm” is applied (step 62, page 20 line 18). The claim further recites a console (26, Fig. 3) and a signal source (drive 18, Fig. 3).

By observing proper order in the processing steps, identified as “sequenced steps” in the language of claim 28, the post processing proceeds without becoming “tinny”, “hollow”, “clipped”, or “choppy,” or evidencing unwanted time delays, static, granularity and other sound degradation.

### **Summary of Claimed Subject Matter as to Independent Claim 29**

Claim 29 recites an audio post processing method, generally shown in Fig. 4 and described in the specification at page 13 line 14 through page 21 line 4, that performs one of several a sequences of steps enumerated in a Markush group in the claim. The individual steps include

A. “matrix mixing” such as downmixing or Prologic algorithms, are applied (step 32 or 34, Fig. 4, page 14 line 3, page 16, line 5) to achieve channel parity.

B. Enhanced surround sound programming (step 40, page 17 line 10) identified as a step of “decoding a surround channel of the matrix mixed audio signal”.

C. Output of a “low frequency input channel” to a “low frequency effect compatible speaker” (step 46, page 18 line 17)

D. Output of an “ambient noise-containing channel” to a speaker system to create a “three dimensional effect” (step 52, page 19 line 7), and

E. Equalization of a “center channel” from the “matrix mixed audio signal” (step 60, page 20 line 3).

Each Markush item identifies an order in the processing steps, which are identified as a “sequence” in the language of claim 29. By respecting the order identified in the claim, the post processing proceeds without becoming “tinny”, “hollow”, “clipped”, or "choppy," or evidencing unwanted time delays, static, granularity and other sound degradation.

### **Grounds of Rejection**

Claims 1, 3-9, 17-18 and 20-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) in view of Eid et al. (US PAT. 7,177,432).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) as modified by Eid (US PAT. 7,177,432) applied to claims 1 above and further in view of Vaudrey (US PAT. 6,442,278).

Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) in view of Vaudrey (US PAT. 6,442,278).

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) in view of Shennib (US PAT. 5,825,894).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) as modified by Eid (US PAT. 7,177,432) applied to claims 17-18 above and further in view of Shennib (US PAT. 5,825,894).

Claims 10, 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eid (US PAT. 7,177,432).



**Argument - Rejections under 35 U.S.C. § 103(a) – Claims 1, 3-9, 17-18 and 20-29**

Claims 1, 3-9, 17-18 and 20-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) in view of Eid et al. (US PAT. 7,177,432).

In the final rejection, the Examiner has cited, as primary references against independent claims, Paisley U.S. Patent 5,530,760, and Eid U.S. Patent 7,177,432.

Regarding claims 1, 17, 28 and 29, the Examiner has asserted obviousness under 35 USC 103 based upon Paisley in combination with Eid. However, neither reference discloses the novel features of the claims, specifically, the recitations of the claims that require the sequenced processing of a digitally encoded audio signal.

The sequenced processing of a digital signal is not shown by Paisley for the reason that Paisley does not, in the first instance, relate to a digital signal, but rather is directed to the processing of analog audio signals. Thus, Paisley does not disclose a matrix mixed signal that includes the variety of channels identified in the claim including a “surround channel”, “low frequency input channel”, “ambient noise containing channel” and “center channel”. It should be noted that, Applicant has used the word “discrete” in referring to the channels, establishing that they are separate from each other in the digital format used prior to processing.

Furthermore, the Examiner has not identified how a sequence of digital process steps is shown by Paisley, which clearly does not implement any such steps.

With regard to Eid, the Examiner has asserted that Eid discloses a digital processing system that involves “matrix mixing” a digital audio signal and, subsequently, “outputting a discrete digital low frequency input channel”. The Examiner’s citation for this disclosure in Eid

is “Figs. 1-2 and col. 4 line 1 – col. 5 line 67.” However, Applicant can find no such disclosure in the cited location. Those locations simply do not mention generation of a discrete digital low frequency channel.

Moreover, and more fundamentally, the Examiner has not identified any citation to Eid or Paisley where the ordering of steps, and specifically the sequential ordering that is explicitly cited in the present claims, is disclosed. As noted in the above summary, ordering of the decoding steps is critical to avoid “hollow” or “tinny” sound, and it is a novel aspect of the present claims that the ordering has been specifically chosen to avoid these effects. Ordering or “sequence” is explicitly required in each independent claim. The Examiner has cited no reference to show or establish ordering of steps as recited in the claims.

With regard to independent claims 10 and 28, the Examiner has asserted unpatentability for obviousness in view of Paisley, taken alone. The Examiner acknowledges that Paisley does not disclose a digital audio signal and applying a headphone algorithm to a matrix mixed audio signal, but the Examiner asserts that doing so would have been obvious. In sum, the Examiner asserts “using an A/D converter to convert the analog signal to digital signal and applying a headphone algorithm to the matrix mixed audio signal are well known in the art (official notice is taken).”

However, the Examiner’s assertion of official notice, even if proper (which Applicant does not concede) does not establish the ordering of steps recited in claim 10, specifically, matrix mixing “then” decoding a surround channel “then” outputting low frequency input channels to a bass compatible speaker”, “then” applying a headphone algorithm. The Examiner has provided

no citations for where the ordering of the steps, and specifically the sequential ordering in claim 10, is disclosed in any prior art.

Thus, the prior art cited against the independent claims, Paisley and Eid., does not relate to the sequenced decoding of a digital, matrix mixed audio signal with at least a surround, low frequency, ambient noise and center channel, Applicant therefore submits that neither Paisley or Eid suggest or anticipate any of independent claims 1, 10, 17, 28 or 29, and the Examiner's rejection thereof must be withdrawn.

**Argument - Rejections under 35 U.S.C. § 103(a) – Claim 2**

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) as modified by Eid (US PAT. 7,177,432) applied to claims 1 above and further in view of Vaudrey (US PAT. 6,442,278).

This rejection is premised upon the asserted teachings of the prior art cited against the independent claims, Paisley and Eid. However, this prior art does not relate to the sequenced decoding of a digital, matrix mixed audio signal with at least a surround, low frequency, ambient noise and center channel, Applicant therefore submits that the Examiner's rejection of claim 2 must be withdrawn.

**Argument - Rejections under 35 U.S.C. § 103(a) – Claims 10 and 12**

Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760).

The Examiner has rejected independent claim 10 as unpatentable over Eid, taken alone. Here, the Examiner asserts that Eid teaches an ordered process of matrix mixing, then surround decoding, then low frequency decoding. However, as noted above, the Examiner has not identified any citation to Eid where the ordering of steps, and specifically the sequential ordering in the present claims, is disclosed.

Applicant thus submits this rejection based on Eid is improper and must be reversed as Eid does not show the elements of the claimed invention and the Examiner has failed to indicate how Eid suggests what Eid does not show.

**Argument - Rejections under 35 U.S.C. § 103(a) – Claim 11**

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) in view of Vaudrey (US PAT. 6,442,278).

This rejection is premised upon the asserted teachings of the Paisley prior art cited against the independent claims. However, this prior art does not relate to the sequenced decoding of a digital, matrix mixed audio signal with at least a surround, low frequency, ambient noise and center channel, Applicant therefore submits that the Examiner's rejection of claim 11 must be withdrawn.

**Argument - Rejections under 35 U.S.C. § 103(a) – Claims 13-16**

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) in view of Shennib (US PAT. 5,825,894).

This rejection is premised upon the asserted teachings of the Paisley prior art cited against the independent claims. However, this prior art does not relate to the sequenced decoding of a digital, matrix mixed audio signal with at least a surround, low frequency, ambient noise and center channel, Applicant therefore submits that the Examiner's rejection of claim 13-16 must be withdrawn.

**Argument - Rejections under 35 U.S.C. § 103(a) – Claim 19**

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paisley (US PAT. 5,530,760) as modified by Eid (US PAT. 7,177,432) applied to claims 17-18 above and further in view of Shennib (US PAT. 5,825,894).

This rejection is premised upon the asserted teachings of the prior art cited against the independent claims, Paisley and Eid. However, this prior art does not relate to the sequenced decoding of a digital, matrix mixed audio signal with at least a surround, low frequency, ambient noise and center channel, Applicant therefore submits that the Examiner's rejection of claim 19 must be withdrawn.



**Argument - Rejections under 35 U.S.C. § 103(a) – Claims 10, 12 and 28**

Claims 10, 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eid (US PAT. 7,177,432).

This rejection is premised upon the asserted teachings of the Eid prior art cited against the independent claims. However, this prior art does not relate to the sequenced decoding of a digital, matrix mixed audio signal with at least a surround, low frequency, ambient noise and center channel, Applicant therefore submits that the Examiner's rejection of claims 10, 12 and 28 must be withdrawn.

Accordingly, Applicant submits that the Examiner's rejection is in error and a reversal of the rejection and allowance of the claims is therefore requested.

Respectfully submitted,

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